

Chapter 1: Institutional Policies

Scientific and professional judgment and humane concern are required for the proper care of agricultural animals used in agricultural research and teaching (referred to in this *Guide* as agricultural animal care and use). Because a variety of management systems and physical accommodations may be used for agricultural animals, an understanding of the husbandry needs of each species and of the particular requirements of agricultural research and teaching is essential for an effective institutional program of agricultural animal care and use (Stricklin and Mench, 1994). Critical components of such a program are established lines of authority and responsibility, an active ACUC, and adequate program of veterinary care, and training and occupational health programs for individuals who work with the animals (PHS, 1988). This chapter is intended to aid in the development of institutional policies and programs for agricultural animal care and use.

MONITORING THE CARE AND USE OF AGRICULTURAL ANIMALS

Each institution should establish an agricultural animal care and use program with clearly designated lines of authority in accordance with this *Guide* and in compliance with applicable federal, state, and local laws, regulations, and policies. The responsibility for directing the program may be given to an animal scientist, veterinarian, or other qualified professional with training and experience in the management of agricultural animals.

The chief executive officer or responsible administrative official of the institution should appoint a committee to monitor the care and use of agricultural animals in agricultural research and teaching activities (hereafter referred to as the animal care and use committee, or ACUC). The ACUC should be composed of individuals who are qualified by experience or training to evaluate the programs and proposals under review and should include at least one individual from each of the following categories:

- A scientist from the institution who has experience in agricultural research or teaching involving agricultural animals.
- An animal, dairy, or poultry scientist who has training and experience in the management of agricultural animals.
- A veterinarian who has training and experience in agricultural animal medicine and who is licensed or eligible to be licensed to practice veterinary medicine.

- A person whose primary concerns are in an area outside of science (e.g., a faculty member from a non-science department, a staff member, a student, or an institutional administrator).
- A person who is not affiliated with the institution and who is not a family member of an individual affiliated with the institution. This public member is intended to provide representation for general community interests in the proper care and treatment of animals and should not be a person who uses animals in agricultural or biomedical research or teaching activities at the college or university level.
- Other members as required by institutional needs and applicable laws, regulations, and policies.

It is strongly recommended that this committee be one that also monitors the care and use of laboratory animals at the institution, providing that the special membership requirements outlined above are met. This recommendation can be fulfilled by a number of different types of committee structures, including a single institutional committee, unit committees (e.g., departmental, college, or program) that review both agricultural and biomedical uses of animals, or an agricultural animal subcommittee of the laboratory animal committee. The overriding goal should be to facilitate centralized, uniform, and high quality oversight of the institution's animal care program.

The ACUC should meet at regular intervals, and at least semi-annually, to ensure that the use of agricultural animals in research and teaching programs is humane, appropriate, and in accordance with this *Guide*. The responsibilities of the ACUC include the following:

- To review and approve or disapprove protocols and other proposed activities, or proposed significant changes in activities, related to agricultural animal care and use in research and teaching.
- To conduct, at least twice per year, an inspection of agricultural animal facilities and study areas, to review the overall agricultural animal care and use program, and to provide a written report to the responsible institutional official regarding the institution's compliance with this *Guide*.
- To investigate concerns, complaints, or reports of non-compliance involving agricultural animals at the facility.
- To suspend an activity involving agricultural animals when it is not in compliance with approved protocols or written operating procedures (see section on Written Operating Procedures).

- To make recommendations regarding the development and implementation of institutional policies and procedures to facilitate, support, and monitor the humane and appropriate use of animals in agricultural research and teaching as well as any other aspect of the agricultural animal care program.
- To perform other functions as may be required by institutional need and by applicable laws, regulations, and policies.

Other useful information about ACUC functions can be found in the *Institutional Animal Care and Use Committee Guidebook* (undated) and the *Public Health Service Policy on Humane Care and Use of Laboratory Animals* (PHS, 1996).

PROTOCOL REVIEW

The review of research and teaching protocols is one of the most important functions of the ACUC. Protocols must be reviewed prior to the initiation of the research or teaching activity to determine whether the proposed care and use of animals is appropriate and humane and then either approved, returned for modifications to secure approval, or disapproved. The ACUC should also conduct continuing reviews of approved activities at appropriate intervals, including a complete review at least once every 3 years. The following topics should be considered in the preparation and review of animal care protocols:

- objectives and significance of the research or teaching activity;
- unnecessary duplication of previous studies;
- availability or appropriateness of alternative procedures or models (e.g., less invasive procedures, cell or tissue culture, or computer simulations) for the proposed research or teaching activity. It should be noted, however, that hands-on training involving animals is a particularly important component of agricultural research and teaching;
- aspects of the proposed experiment or demonstration having to do directly with animal care and use, including
 - justification for the species and (or) strain of animal used,
 - justification for the number of animals used,
 - description of procedures that cause discomfort, distress, or pain and of methods of alleviation including anesthesia, analgesia, and tranquilizers, as well as justification for any procedures that involve unalleviated pain, discomfort, or distress;
- appropriateness of procedures and postprocedural care;
- criteria and process for timely intervention, removal of animals from a study, or euthanasia if painful and stressful outcomes are anticipated;
- unusual husbandry requirements;

- aspects of animal husbandry not covered under written operating procedures (see section Written Operating Procedures);
- method of euthanasia or disposition of the animal; and
- responsibilities, training, and qualifications of the researchers, teachers, students, and animal care personnel involved in the proposed activities.

The US Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training (Appendix 1) state that “Procedures involving animals should be designed and performed with due consideration of their relevance to human or animal health, the advancement of knowledge, or the good of society.” Because ACUCs are not ordinarily constituted to function as scientific peer-review committees, the ACUC should be judicious in reviewing the merit proposed research and teaching activities (Prentice et al., 1992). Institutions should consider developing other mechanisms for peer merit review of research projects that have not already been reviewed by outside agencies.

The ACUCs are encouraged to work closely with investigators to help them refine their protocols and proposed animal care and use practices.

The common acceptance and use in animal agriculture of a production system, management practice, or routine procedure does not reduce the responsibility of every animal user to follow applicable laws, regulations, and policies, including the standards outlined in this *Guide*. Exceptions to some provisions, however, may be justifiable in order to obtain new knowledge or to demonstrate methods commonly used in commercial agricultural animal production. For example, applied research and teaching may require the use of production practices that are consistent with those currently in use in the appropriate industry even though those practices differ from those outlined in this *Guide*; research and teaching dealing with infectious diseases, toxins, or products of biotechnology may require special facilities. Exceptions to this *Guide* should be stated explicitly in research and teaching protocols and be reviewed and approved by the ACUC.

WRITTEN OPERATING PROCEDURES

It is good practice to develop written policies or procedures for animal care and husbandry for each operating unit in the program. These written policies should be reviewed as appropriate, filed in the appropriate administrative office and in locations accessible to those individuals involved in carrying out the designated procedures, and monitored regularly by personnel designated by the institution.

There are certain commercial husbandry practices routinely carried out on agricultural animals that may cause temporary discomfort or pain. These standard agricultural practices (see Chapters 2 and 5 to 11) need not necessarily be described separately for each study, experiment, or demonstration, but are acceptable as written operating pro-

cedures provided that the practices (1) are warranted to sustain the long-term welfare of the animal and (or) the animal's caretakers or handlers; (2) are performed by or under the direct supervision of capable, trained, and experienced personnel; and (3) are performed with precautions taken to reduce pain, stress, and infection. The written operating procedures for these practices should be reviewed and approved by the ACUC.

Husbandry procedures and production methods at agricultural research facilities should be revised as research demonstrates improvements. Research on improved methods and procedures is encouraged.

ANIMAL HEALTH CARE

Adequate health care must be provided for all agricultural animals used in research and teaching (see Chapter 3). Institutional requirements will determine whether full-time, part-time, or consulting veterinary services are appropriate.

BIOSECURITY

It is essential that the agricultural animal care staff maintain a high standard of biosecurity in order to protect the animals from pathogenic organisms that can be transferred by humans. Good biosecurity begins with personal cleanliness. Showering or washing facilities and supplies should be provided, and personnel should change their clothing as often as necessary to maintain personal hygiene. Disposable gear, such as gloves, masks, coats, coveralls, and shoe covers, may be required under some circumstances. Personnel should not leave the work place in protective clothing that has been worn while working with the animals. Personnel should not be permitted to eat, drink, apply cosmetics, or use tobacco in enclosed animal facilities. Visitors should be limited as appropriate, and institutions should implement appropriate precautions to protect the safety and well-being of the visitors and the animals.

PERSONNEL QUALIFICATIONS

It is the responsibility of the institution to ensure that scientists, agricultural animal care staff, students, and other individuals who care for or use agricultural animals are qualified to do so through training or experience. Training programs should be tailored to institutional needs, but provide information about the humane care and use of agricultural animals, including (1) husbandry needs, proper handling, surgical procedures, and pre- and postprocedural care; (2) methods for minimizing the number of animals used and for minimizing pain and distress, including the proper use of anesthetics, analgesics, and tranquilizers; (3) methods for reporting deficiencies in the animal care program; and (4) use of information services such as the Animal

Welfare Information Center at the National Agricultural Library (NRC, 1991; CFR, 1992). Records of participation in training programs should be maintained in the appropriate institutional office.

Employees who provide routine animal care should participate regularly in in-service education and training relevant to their responsibilities. Formal or on-the-job training opportunities should be made available to all technical and husbandry support staff, including those who are temporary or part-time employees. It is recommended that the training program include information provided by experts from a broad range of disciplines such as animal husbandry, behavior, nutrition, environmental physiology, experimental surgery, veterinary clinical and diagnostic medicine, agricultural engineering, and instrumentation. There are also a variety of written reference materials available for use in training programs (Kreger, 1995).

In addition to in-house training, it is desirable for agricultural animal care staff to be professionally trained or certified. Many states have colleges with accredited programs in veterinary technology (AVMA, 1995). Technician and technologist certification is available through AALAS, although that program primarily emphasizes the care and use of laboratory animals rather than agricultural animals. Animal scientists with educational credentials ranging from the baccalaureate through the doctorate who seek recognition of their expertise in the biology and production of agricultural animals can be certified by examination by ARPAS.

OCCUPATIONAL HEALTH

An occupational health and safety program must be established for individuals who work with agricultural animals. The program should be consistent with federal, state, and local regulations and will depend on the facilities, research activities, and hazards involved. The degree of participation of individuals in the program should be based on an assessment of risk by health and safety specialists involving consideration of the hazards posed by the animals and materials used; the duration, frequency, and intensity of exposure; the susceptibility of the personnel; and the history of occupational injury and illness in the particular workplace (Clark, 1993).

General guidelines for such programs have been published by the NRC (1997). The program for individuals working with agricultural animals may include a physical examination prior to placement, periodic medical evaluations for people in some job categories, surveillance to ensure protection from health hazards, and provisions for treating illness or injury. The program should also include an educational component to teach personnel about large animal diseases and zoonoses, physical hazards, personal hygiene, precautions to be taken by individuals who are at unusual risk (e.g., pregnant women), and other considerations as appropriate (e.g., safety precautions with chemi-

cals, radiation, and other hazardous agents that are part of a particular experimental protocol).

An appropriate immunization schedule should be adopted. It is important to immunize all agricultural animal caretakers against tetanus every 10 years. Prior to exposure, immunizations should be offered to people who handle animals and risk infection from certain infectious agents. Prophylactic vaccinations should also be considered when research is being conducted on infectious diseases from which effective vaccines are available.

Allergies and physical injuries constitute health hazards for individuals working with agricultural animals. Institutions should identify high risk areas and tasks and should educate animal care personnel about methods for reducing risk. Injuries can be minimized by providing training in proper animal handling, lifting, and equipment use. Access to first aid and medical treatment should be readily available, and personnel should be trained and familiar with access procedures. Such access may include readily available and properly stocked first aid kits. Cases of animal bites and scratches should be documented, and tetanus prophylaxis should be considered.

Caretakers working with agricultural animals in closed buildings may develop respiratory problems, including chronic and irreversible lung damage (Donham and Leininger, 1984). Appropriate respiratory protection should be provided for these individuals.

Zoonoses can also be a serious risk. Personnel (including animal care staff, technicians, investigators, clinicians, students, maintenance workers, and security staff) who have contact with or an opportunity for contact with animals or their excreta, products, or tissues should be made aware of hazards that have been identified and that are determined to be a risk (Donham, 1985; Acha and Szyfres, 1989). Zoonotic disease in animal populations should be screened for or monitored regularly as appropriate. Appendix 2 Table A-1 is a table of the most common zoonotic diseases found in agricultural animals and the means by which they are spread.

The noise level in some animal facilities may sometimes be high. When personnel are exposed to noise exceeding federal standards, appropriate protection programs should be implemented (CFR, 1995).

Work assignments and health records should be a part of an occupational health program. Records should be kept of individual work assignments and should include the date and time of injuries or unusual illnesses. Personnel should be instructed to notify their supervisor of suspected health hazards.

SPECIAL CONSIDERATIONS WHEN HAZARDOUS AGENTS ARE USED

The use of certain hazardous biological, chemical, or physical agents necessitates compliance with applicable laws and regulations as well as compliance with guidelines issued by granting agencies and organizations. Institutions

should have written policies governing experimentation with hazardous agents and should also ensure that staff members conducting and supporting research projects involving hazardous agents are qualified to assess the dangers to animals and humans and are capable of selecting appropriate safeguards. Special facilities and equipment may be required for certain hazardous agents. Further information about recommended practices and procedures can be found in publications by CDC and NIH (1993, 1995) and by NRC (1997).

REFERENCES

- Acha, P. N., and B. Szyfres. 1989. Zoonoses and communicable diseases common to man and animals. Sci. Publ. No. 503. World Health Organization, Washington, DC.
- AVMA. 1995. Accredited programs in veterinary technology. Pages 236-240 in 1995 AVMA Membership Directory and Resource Manual. 44th ed. AVMA, Schaumburg, IL.
- CDC and NIH. 1993. Biosafety in Microbiological and Biomedical Laboratories. 3rd ed. Dept. Health and Human Services Publ. No. (CDC) 93-8395. US Govt. Printing Office, Washington, DC.
- CDC and NIH. 1995. Primary Containment for Biohazards: Selection, Installation and Use of Biological Safety Cabinets. US Govt. Printing Office, Washington, DC.
- CFR. 1992. Title 9 (Animals and Animal Products), Subchapter A (Animal Welfare), Parts 1-4 (9CFR 1-4).
- CFR. 1995. Occupational noise exposure. 29 CFR, Sec. 1910.95. Office Fed. Reg. Natl. Archiv. Records Admin., Natl. Archiv. US, Washington, DC.
- Clark, J. M. 1993. Planning for safety: biological and chemical hazards. *Lab Anim.* 22:33-38.
- Donham, K. J. 1985. Zoonotic diseases of occupational significance in agriculture: a review. *Int. J. Zoonoses* 12:163-191.
- Donham, K. J., and J. R. Leininger. 1984. Animal studies of potential chronic lung disease of workers in swine confinement buildings. *Am. J. Vet. Res.* 45:926-931.
- Institutional Animal Care and Use Committee Guidebook. Undated. NIH Publ. No. 92-3415. Dept. Health and Human Services, Washington, DC. (Copies available from ARENA.)
- Kreger, M. D. 1995. Training materials for animal facility personnel. AWIC Quick Bibliography Series, 95-08. Natl. Agric. Library, Beltsville, MD.
- NRC. 1991. Education and Training in the Care and Use of Laboratory Animals: A Guide for Developing Institutional Programs. Natl. Acad. Press, Washington, DC.
- NRC. 1997. Occupational Health and Safety in the Care and Use of Research Animals: A Guide for Developing Institutional Programs. A Report of the Institute of Laboratory Animal Resources Committee on Occupational Safety and Health in Research Animal Facilities. Natl. Acad. Press, Washington DC.
- PHS. 1988. Institutional Administrator's Manual for Laboratory Animal Care and Use. Dept. Health and Human Services, Washington, DC. (Copies available from OPRR.)
- PHS. 1996. Public Health Service Policy on Humane Care and Use of Laboratory Animals. Dept. Health and Human Services. Washington, DC. (Copies available from OPRR.)
- Prentice, E. D., D. A. Crouse, and M. D. Mann. 1992. Scientific merit review: the role of the IACUC. *ILAR News* 34:15-19.
- Stricklin, W. R., and J. A. Mench. 1994. Oversight of the use of agricultural animals in university teaching and research. *ILAR News* 36:9-14.